

In the following questions, input your answer as a numerical value. If you wish to use scientific notation, please use the following format. The number 1.8×10^{25} should be written "1.8e25" or as "1.8*10^25"

Measuring Gases

1.0/1 point (ungraded)

Solve the following problems pertaining to pressure. Please round your answer to three digits. Write your answer as a number only. Do not write the units.

A bronze statue of a person is placed inside a museum. The statue weighs **899.4 kg**, and the pedestal base of the statue has an area of **0.273 m^2** . When the pedestal is on the floor, what is the pressure, in **Pa**, that the statue supplies? (For this problem, use the gravitational constant on Earth as **$g = 9.80665 \frac{\text{m}}{\text{s}^2}$**)

Pa ✓

Correct.

Grading method: Last Score

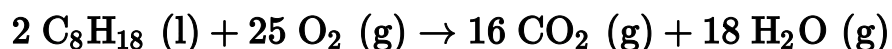
Ideal Gases

0.5/1.0 point (ungraded)

For the following samples of gases, calculate the unknown value using the Ideal Gas Equation of State, **$PV = nRT$** . Use the ideal gas constant **R** as **$0.082057 \frac{\text{L atm}}{\text{K mol}}$** .

Write your answer as a number only, do not include the units. Please round your answer to three significant figures.

Consider the combustion of octane (**C_8H_{18}**) in oxygen:



You burn **4.72 moles** of octane in your car engine. What volume, in liters, of oxygen is needed if the pressure of your tank is **1.76 atm** and the temperature is **63.42 °C**?

L *

Your value is correct, but your answer does not have the correct number of significant digits.

Grading method: Last Score

* Partially correct (0.5/1 point)

Dalton's Law of Partial Pressure

3 points possible (ungraded)

For the following sample of gases, calculate the partial pressures of the components. Use the ideal gas constant **R** as **0.0820573 $\frac{\text{L atm}}{\text{K mol}}$** .

Write your answer as a number only, do not include the units. Please round your answer to three significant figures.

Say you have another mixture of three gases: **Ne**, **O₃**, and **N₂O**. You have **14.4 moles** of **Ne**, **25.4 moles** of **O₃** and **20.3 moles** of **N₂O**. These gases are held in a vessel with constant temperature and volume and a pressure of **15.6 atm**. Assume no reactions occur.

Recall: **1 atm = 1.01325 bar**

a) Look at the first component, **Ne**. What is the partial pressure of **Ne**, in **bar**?

bar

b) Look at the second component, **O₃**. What is the partial pressure of **O₃**, in **bar**?

bar

c) Look at the third component, **N₂O**. What is the partial pressure of **N₂O**, in **bar**?

bar

Grading method: Last Score

If after taking this Pre-Test you feel that you need to study this material, please review the sub-module entitled "Gases."
